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Case Report

A battered child case with duodenal perforation ☆

Mehmet Sunay Yavuz MD (Associate Professor) [a], Ilker Buyukyavuz MD (Assistant Professor) [b], Cagri Savas MD (Associate Professor) [c], Ismet Faruk Ozguner MD (Associate Professor) [b], Ahmet Kupeli MD (Research Assistant) [d], Mahmut Asirdizer MD (Associate Professor) [e,*]

[a] *Forensic Medicine Department, Medical Faculty of Celal Bayar University, Manisa, Turkey*
[b] *Pediatric Surgery Department, Medical Faculty of Suleyman Demirel University, Isparta, Turkey*
[c] *Director of Pediatric Surgery Department, Medical Faculty of Suleyman Demirel University, Isparta, Turkey*
[d] *Forensic Medicine Department, Medical Faculty of Suleyman Demirel University, Isparta, Turkey*
[e] *Director of Forensic Medicine Department, Medical Faculty of Celal Bayar University, 45030 Manisa, Turkey*

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Abstract

Battered child syndrome can refer to children exposed to harmful, non-accidental and preventable physical treatment by those are responsible for their care which prevents the child's physical, cognitive and spiritual development.

A 28 months old boy was submitted to hospital due to abdominal blunt trauma. He had been firstly applied to Isparta Children Hospital by his parents with the complaint of fever. In the first examination, he was conscious, his general condition was poor there was respiratory acidosis, and neck stiffness was present. There were several fresh traumatic lesions on his face and left arm. His complaints were thought due to meningitis and antibiotics were started. He was transported to Suleyman Demirel University Hospital after a day because of vomiting, abdominal pain, tender, distended and silent abdomen, and air–fluid levels in direct abdominal X-rays. An old fracture of the right 9th rib was detected with chest X-ray in university hospital. Additionally, abdominal ultrasound scan showed distended bowel loops filled with fluid. Laparotomy revealed a complete rupture of the junction of the third and fourth parts of the duodenum and several hemorrhagic regions on bowel loops. The patient was discharged after 42 days. This case report described the case through both medical and legal processed in Turkey.

Keywords: Battered child syndrome; Duodenal rupture; Rib fracture

1. Introduction

Battered child syndrome is the term used to define a clinical condition in young children, who have received non-accidental violence or injury, on one or more occasions, at the hands of an adult in a position of trust, generally parent, guardian or foster parent. Inconsistencies are common between the history offered of a minor accident and the physical findings of a major injury.[1]

We could see "child maltreatment" term in Hugo and Dickens novels before it was first described by Tardieu 1860.[2,3] Association of long bone and costae fractures, subdural hematoma and "child maltreatment" was showed by Caffey in 1946. Kempe et al. coined up the term of "battered child" in the literature in 1962.[2,4–8] Much progress has been made in different countries in identifying and managing such cases.

Oversensitivity or hyposensitivity of the children to the pain, insufficient history to the explanation of trauma's features, the time between the approval of the patient for

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* Corresponding author. Tel.: +90 236 233 07 18/12 20; fax: +90 236 233 14 66.
E-mail address: masirdizer@yahoo.com (M. Asirdizer).

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physical examination and trauma's exact time may lead us to the diagnosis of battered child syndrome.[9]

Lesions in different part of body with different ages of the lesions, unusual locations of the lesions, different natures of the lesions in the same child, unexplained origin of the lesions and trying to cover of the lesions by family or other care givers might be important clues for the battered child syndrome.[9]

Skeletal injuries in association with an inconsistent history and often in a recognizable pattern are strong indicators of battered child.[10] Rib fractures are a common skeletal manifestation of non-accidental injury in infants and young children, and are generally considered to be highly specific for abuse.[11]

Blunt abdominal trauma is the second commonest cause of death in abused children.[12] Duodenal injuries due to blunt trauma are rare, but those may be life threatening and are notoriously difficult to diagnose, especially in young children where the history and symptoms may not be forthcoming.[13]

A battered child case with duodenal perforation and healing of rib fracture is described.

2. Case

A 28 months old male was admitted to Isparta Children Hospital with the complaint of fever. In the first examination, he was conscious; his general condition was bad, there were respiratory acidosis, and neck stiffness. There were several fresh traumatic red–purple ecchymosis on his face and left arm. His pathology is defined as meningitis and anti-biotherapy was begun.

He was transported to Suleyman Demirel University Hospital after a day because of vomiting, abdominal pain, distended, tender, and silent abdomen, and air–fluid level in direct abdominal X-rays. Additionally abdominal ultrasound scan showed the distended bowel loops filled with fluid (Fig. 1) and an old fracture of the right 9th rib was detected chest X-ray (Fig. 2). Total blood count showed that his hemoglobin was 9.2 mg/dL, wbc was 13,000 dL^{-1}. His blood chemistry revealed that slightly high liver enzymes and no other abnormality. His parent's stated that the case fell from armchair three days ago and they denied any trauma story which was verified by old rib fracture. Emergency laparotomy revealed a complete rupture of the junction of the third and fourth part of the duodenum, several hemorrhagic regions on bowel loops and intra-abdominal bile collection requiring duodena–duodenal anastomosis, gastrostomy and jejunostomy. The clinicians informed the police for suspicious child abuse because of the operative and physical examination findings. Patient was discharged after 42nd day of hospitalization.

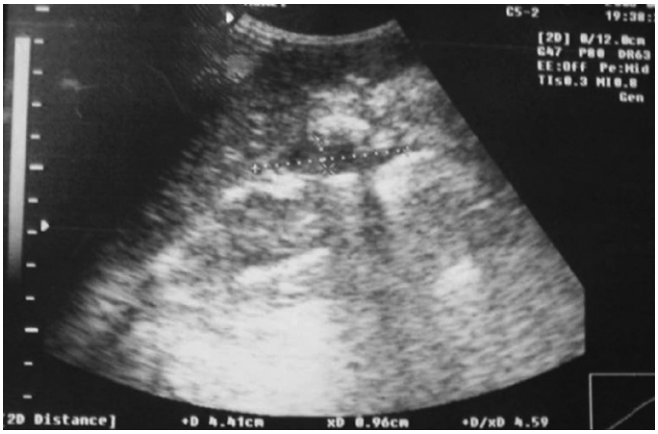

Fig. 1. Abdominal ultrasound scan shows free fluid in Morrison's Pouch.

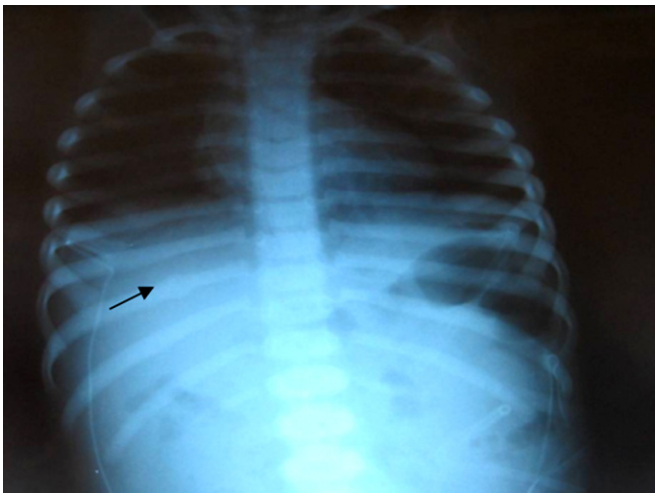

Fig. 2. Anteroposterior chest radiograph shows a 9th rib fracture. There is callus formation surrounding the fracture, which indicates that this is an old injury.

The patient and parents were referred to the Forensic Medicine Department by the court three days after discharged for the arrangement of a medico-legal report to determine whether there had been child abuse or not.

Forensic clinicians interviewed his parents. In this meeting, father denied any trauma while mother claimed that her boy had been injured during playing by six years old brother.

In the examination of the patient in the forensic medicine department, traumatic lesions on his face and left arm were healed. There was no lesions except operation scars on his body. In the medico-legal evaluation, the contradictory statements of parents, the discordance between clinical findings and stories which had shown as cause of trauma, the presence of old rib fracture associated to new trauma injuries, the exist of duodenal rupture were attributed to battered child syndrome.

3. Discussion

The non-accidental injury of children which entitled as "child abuse" is a world-wide phenomenon that transcends race, religion, color and socio-economic status and this is one of the major problems practitioners face.[14,15] According to WHO reports, the incidence of "child abuse" is ten

times more than the incidence of cancer. (the rate of child abuse: 40/1000; the rate of cancer; 3.9/1000) This shows that "child abuse" is a major public health problem.[9]

The most important information leading to a diagnosis of physical abuse is obtained through the medical history.[16] The attendants usually get delay to take the abused children to hospital. In such cases there are some contradictions between family members' statements and the anamnesis would not be enough to explain the physical findings.[14,16] Additionally there would be many contrasted trauma stories for only one injuring and/or many unreliable anamneses for recurrence of traumas. The parents usually accuse the sisters or brothers of the patients or they might accuse the children themselves. The victim of child abuse is taken to different hospitals.[16,17]

In our case, there were delaying for two days during applying to hospital and some contradictions between family members' statements. Especially mother of child told different stories during hospitalization and she accused her big son at final meeting in the forensic medicine department for this injury.

In abused cases, multiple trauma findings, which occurred in different times, are defined clinical and/or radiological.[18] The X-rays of all body must obtain in all suspected child abuse cases for the investigation of fracture sequels in any bone.[18,19] Rib fractures in children less than three years of age, regardless of location or number, highly predictive of child abuse and this finding should alert the physician.[11,20–23] The rib fractures were difficult to visualize and healed with minimal callus formation.[11]

Duodenal rupture following blunt abdominal trauma is rare and it usually seen with other abdominal organ injuries and it is usually related to motor vehicle accidents.[24–26] Isolated blunt injury of the duodenum is less common and it may be life threatening and are notoriously difficult to diagnose.[24] A high energy force directed to the center of the upper abdomen may result in disruption of the duodenum.[13,27] The mechanism of intestinal rupture is variable and controversial. Most authors consider direct compression with tearing between two opposing surfaces, such as the abdominal wall and spine, to be the most likely cause of intestinal injury.[24,28] Even it may be seen as accidentally, it should not be ignore to evaluation for child abuse also.[12]

In present case, duodenal perforation and an old fracture of the right 9th rib were determined. Those findings have show that the child exposed to multiple traumas in different times. Unfortunately the statements of his parents was insufficient for explaining to cause of those traumas which occurred different times. The datum which obtained from both of anamnesis and physical examination was been important evidences for definition as "battered child" of this case.

In addition to the traditional roles of diagnosis and treatment, the physician also has the responsibilities in law of reporting of medico-legal events like child abuse. The collaboration between the clinicians and the forensic specialists is needed before instigation of criminal proceedings can be justified to point out the problem in the diagnosis of battered child syndrome, especially of the abdominal blunt trauma. This case is used to illustrate the process in Turkey.

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